

A B S T R A C T

A TiN film is formed to have a predetermined thickness on a semiconductor wafer by heating the semiconductor wafer at a film formation temperature within a process container and performing a cycle including a first step and a second step at least once. The first step is arranged to supply a TiCl_4 gas and a NH_3 gas to form a film of TiN by CVD. The second step is arranged to stop the TiCl_4 gas and supply the NH_3 gas. In film formation, the semiconductor wafer is set at a temperature of less than 450°C and the process container is set to have therein a total pressure of more than 100 Pa. The NH_3 gas is set to have a partial pressure of 30 Pa or less within the process container in the first step.